NETWORK TRANSPARENT SWITCH HAS MILITARY AND COMMERCIAL APPLICATIONS

Payoff

The innovative and state-of-the-art switching technology was developed under a Small Business Innovation Research program. This joint research and development program and commercialization effort resulted in an off-the-shelf product for use in both military and commercial applications. The network transparent switch eliminates the need for physical patching, thus avoiding connector failures - a common problem in fiber-optic systems.

Accomplishment

Under a Small Business Innovation Research (SBIR) program sponsored by the Sensors Directorate, Systran Corporation of Dayton OH developed a high capacity, high bandwidth, cross-bar switch that can simultaneously provide point-to-point, arbitrated loop and broadcast communication links. The Network Transparent Switch (NTS) supports both copper and optical media at rates up to 1.5 gigabits/second per channel.

Background

The Directorate identified a need to network high bandwidth audio, video and data signals for several of its in-house, real-time simulation facilities. For robust, full aircraft system simulations to be executed, two or more physically separated facilities were networked together. Because of the bandwidth requirements coupled with distance, fiber-optic links were employed. Configuration of the networks had to be done manually through physically connecting fiber cables. The goal of the SBIR program was to define a family of network products to create a turn-key solution to these requirements. The first of these building blocks to be developed was a switching system that could automatically configure all the network connections through computer control. The result was the NTS that not only allows for automatic network configuration, but also includes fault detection designed to reconfigure a system to bypass failed nodes. The NTS can handle networks employing copper and optical media simultaneously and can convert seamlessly between the two. The 32x32 cross-point switching system is called “transparent” because it performs no encoding, decoding or protocol processing of the data signals. The data signals with all embedded protocol are passed through unaltered. NTS units can be cascaded to switch networks of virtually any size.